

REMARKS

Claims 24-43 are presently pending in this application. Claims 1-23 have been canceled herein as being directed to a non-elected invention. Claim 24 is amended herein to correct an informality unrelated to patentability. Claim 27 is also amended herein. Applicants respectfully request reconsideration and withdrawal of the rejections of the claims.

The drawings were objected to under 37 CFR 1.83(a) as not showing "every feature of the invention specified in the claims." A new Figure 2g has been added to show a multilayered thin stop layer 32.

Claims 24-25 and 28-29 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,417,090 issued to Wang, et al. ("Wang").

Examiner has asserted that the "thin stop layer" capping "a top surface of said semiconductor structure" can be interpreted broadly. However, Applicants have defined the term "thin" as "about 300Å and less" (paragraph 0008 on page 3), thus the term "thin" can only be interpreted in this range. In Wang, the etch stop layer 34 has a significantly greater thickness of about 400Å to about 1000Å (column 5, lines 11-15). As such, Wang lacks the recited claim element of a "thin etch stop layer." For this reason, Applicants respectfully submit that claim 24 is patentably distinct over Wang.

Because claims 25 and 28-29 depend from claim 24 and provide additional defining limitations, Applicants respectfully submit that claims 25 and 28-29 are patentably distinct over Wang.

Claims 24-25, 28 and 30 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,117,793 issued to Tang, et al. ("Tang").

As was addressed above, the term "thin" should be interpreted as less than 300Å. In Tang, the silicide layer 108 has a thickness range of about 400Å to about 600Å (column 4, lines 4-6). As such, Tang lacks the recited claim element of a "thin etch stop layer." For this reason, Applicants respectfully submit that claim 24 is patentably distinct over Tang.

Because claims 25, 28 and 30 depend from claim 24 and add further limitations, Applicants respectfully submit that claims 25, 28 and 30 are patentably distinct over Tang.

Claims 24-34 were rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U. S. C. 103(a) as being obvious over U.S. Pub No. 20040084680, issued to Ruelke, et al. ("Ruelke"). Also, claims 35-41 were rejected under 35 U. S. C. 103(a) as being unpatentable over Ruelke for being obvious.

Examiner has asserted that "although the reference does not appear to disclose the limitation 'substantially free of damage'", it will be apparent that Ruelke "would possess or appear to possess the missing limitation." Applicants have defined the term "thin" to be about 300Å or less (paragraph 0008 on page 3), for which, "removing the thin stop layer capping the lower level of the copper can be accomplished without causing excess damage to the copper." Self-evidently, a thin stop layer can be etched in a more controllable way than a thick stop layer. In Ruelke, however, the etch stop layer 250 has a thickness range of about 100Å to about 1000Å (paragraph 0035 on page 4). Further, Ruelke does not distinguish or appear to recognize the significance in any way between the 100Å thick layer and the 1000Å thick layer. Hence, it cannot be inferred that the processes taught by Ruelke would not result in damage to the

metallization layer (without the benefit of hindsight provided by Applicants' teaching. Therefore, the "metallization layer" in Ruelke will not be "substantially free of damage," and the missing limitation is neither taught nor suggested by Ruelke. For this reason, Applicants respectfully submit that the limiting factor "substantially free of damage" is not taught or suggested, and that claim 24 is patentably distinct over Ruelke.

Claim 27 has been amended, and now recites that the "thin stop layer is deposited to a thickness of less than about 100Å." The etch stop layer 250 in Ruelke has a thickness range of about 100Å to about 1000Å (paragraph 0035 on page 4), and it does not teach or suggest that the thickness of the stop layer should be less than 100Å.

Because claims 25-34 depend from claim 24 and add further limitations, Applicants respectfully submit that claims 25-34 are patentably distinct over Ruelke.

Accordingly, Applicants respectively submit that claim 24 is allowable over the references of the record. Claims 25-41 depend from claim 24 and add further limitations, therefore they are believed to be allowable over the references of the record.

Claim 42 and 43 were rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U. S. C. 103(a) as obvious over Ruelke.

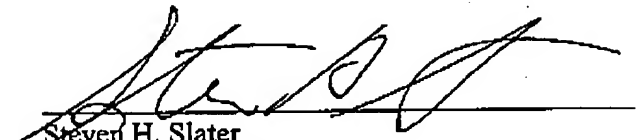
For the same reasons addressed above, in Ruelke, the etch stop layer 250 has a thickness range of about 100Å to about 1000Å (paragraph 0035 on page 4). Therefore, the "metallization layer" will not be "substantially free of damage," (claim 42), or "with reduced damage" (claim 43). Therefore, Ruelke does not teach or suggest the missing limitation.

Accordingly, Applicants respectively submits that claims 42 and 43 are allowable over the references of the record.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Steven H. Slater, Applicants' attorney, at 972-732-1001, so that such issues may be resolved as expeditiously as possible. No fee is believed due in connection with this filing. However, should one be deemed due, the Commissioner is hereby authorized to charge Deposit Account No. 50-1065.

Respectfully submitted,

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Date


Steven H. Slater
Attorney for Applicants
Reg. No. 35,361

Slater & Matsil, L.L.P.
17950 Preston Rd., Suite 1000
Dallas, Texas 75252-5793
Tel. 972-732-1001
Fax: 972-732-9218